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Saving Fuel Energy in the Kitchen

EMPLOYED HOMEMAKER



Texas Agricultural Extension Service

The Texas A&M University System

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Saving Fuel Energy in the Kitchen

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Rising fuel costs encourage consumers to take steps to reduce energy use, especially in the home. In-home food preparation accounts for 16 percent of the energy used in the food system. Food preparation, storage and cleanup provide opportunities to save fuel energy. Energy saving measures must be practiced daily to have a positive effect on utility costs.

Small Appliances

Use the smallest appliances possible for preparing small amounts of food. For example, a pop-up toaster uses one-third the energy of a full-size oven for toasting bread. Electric griddles, toasters, tea kettles, coffee pots and popcorn poppers each perform jobs more efficiently than gas or electric ranges. Portable ovens, frypans and broilers use from 9 to 44 percent less energy than large ovens or broilers when baking or broiling small quantities. Crockery cookers (slow cookers) use more energy than other types of surface cooking, but less than oven cooking. Using a high temperature setting for a shorter cooking time requires 12 to 22 percent less energy than a lower setting for a longer time.

Surface Units

Energy efficient use of surface units begins with matching utensil to size of burner. As shown in Table A cooking in a small pan on a large burner wastes energy.

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Tables A and B illustrate energy use at selected temperature settings on gas and electric ranges. Keep these figures in mind when using surface burners. High heat selection on electric or gas ranges should be used for boiling water or bringing food to cooking temperatures quickly. Once foods are at boiling, they will cook just as quickly on simmer or low as on high heat. Place heat reflectors below heating elements to reflect heat more efficiently.

A complete meal cooked on surface units is the most economical method. To help reduce the air conditioner's load and keep the kitchen cooler in warm weather, use a ventilation hood fan.

Table A

Electrical Input of Electrical Range Surface Units

Five-Heat Electric Units

Setting	6 inch unit (watts/hour)	8 inch unit (watts/hour)
High	1400	2600
Medium high	720	1150
Medium low	500	640
Low	180	287
Simmer	125	160

Seven-Heat Electric Units

Setting	Watts
High	1469.1
2	920.4
3	713.9
Medium	418.9
5	271.4
6	247.8
Low	59.0

Table B

Gas Burner Ratings

Standard Burner Setting	Btu/hour
High	10,000
Medium	3,200
Low	1,500

Try to prepare all foods for a meal in one area of the range. Cooking all the meal on the range surface, in the oven or in the broiler not only saves energy, but keeps the kitchen cooler during warmer months. Plan your menus with foods that cook at about the same temperature—vegetables, main dish, bread and dessert. Foods with slightly different cooking temperatures can usually be cooked together successfully, if variations are not more than 25 degrees Fahrenheit.

For baking, preheat electric or gas ovens only 5 to 10 minutes since preheating can require 9 to 28 percent more energy. Setting the thermostat higher to preheat will not increase the speed of preheating and will only waste energy. Do not preheat oven when broiling or roasting. Use a maximum temperature of 325 degrees when roasting meats unless the recipe states otherwise. Juices are retained and less energy is used. Turn the oven off about 15 minutes before you are ready to remove roasting meats or casseroles to take advantage of retained heat. The same principle holds true for surface unit cooking. Accumulated heat and steam will finish cooking.

Use the oven light when needed. It adds heat energy. Do not “peek”! Heat loss occurs each time the oven door is opened, increasing cooking time and energy use.

Thaw frozen casseroles, meat and other foods in the refrigerator to reduce boiling and baking time. Putting a frozen roast directly into the oven requires more cooking time and energy.

Microwave

The microwave oven is most efficient for reheating and baking small quantities, using 30 to 70 percent less energy than regular ovens for these items. However, cooking a meal in the microwave oven, one item at a time, uses 28 to 130 percent more energy than cooking them all at once in a conventional oven.

Utensils

Use flat-bottom pans with straight sides and firm-fitting lids to save fuel and cook foods more quickly. Use pots and pans that fit the unit and extend no more than one inch over the edge to minimize heat loss to the air. Lower oven temperature 25 degrees Fahrenheit when baking in ceramic or glass containers. Pressure cookers save time and energy when braising,



steaming or stewing. In addition to cooking foods faster, the pressure cooker uses 26 to 42 percent less energy than a saucepan on top of the range.

Refrigeration

Allow foods to cool before putting in the refrigerator or freezer. Foods can be cooled quickly in a container of ice water. Cover or wrap foods stored in the refrigerator to avoid the release of moisture, which causes faster frost build-up in standard models or more rapid defrosting of frost-free models. Reduce the release of cool air from the refrigerator by removing several items for one dish at once.

Freezer

A home freezer is a convenience but a big energy user. Frostless freezers are more costly to operate than conventional models. A 15 cubic foot conventional freezer uses only an average of 1165 kilowatt hours of energy per year compared to 1761 kilowatt hours for a frostless freezer of the same capacity. The cost of operating a frostless freezer in this instance is over 30 percent higher.

Put no more than two to three pounds of unfrozen food per cubic foot into the freezer at one time. Otherwise, foods may freeze too slowly and lose quality or spoil.

Keep the freezer full! The greater the turnover of foods in the freezer, the greater the savings of energy per food item. Coldness is retained better by food than by air that spills out each time the door is opened.

In frostless models, make certain items are wrapped tightly in moisture-vapor resistant bags of plastic wrap, freezer paper or foil to eliminate evaporation, freezer burn and excess operation time.

Condenser coils should be carefully cleaned twice a year to assure a free flow of hot air from the compressor for greater efficiency and fuel savings. Manually defrosted units should be defrosted before the frost is over 1/4 inch thick. Build-up of ice on evaporator coils acts as an insulator causing the freezer to operate less efficiently. To slow the accumulation of frost, open the door only when necessary and close immediately. Cover all foods to prevent release of moisture into the air.

Clean-Up

Use the dishwasher only when you have a full load. After the final rinse, turn off the control knob and open the door to let dishes dry. Do not use hot water to re-rinse dishes. Allow hand-washed dishes to drain dry instead of towel drying. Air-dried dishes are more germ-free than those towel dried and laundry load is reduced.

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